

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-27. (Cancelled).

28. (Currently Amended) A method of operating a flowmeter comprising:

determining an operational parameter associated with the flowmeter, based on a sensor signal received from a sensor, the sensor being operable to measure vibrations of a vibratable flowtube associated with the flowmeter;

determining a zero-flow calibration value based on the operational parameter, and based on a plurality of previously-determined zero-flow calibration values;

taking a measurement of a property of a material within the flowtube associated with the flowmeter, using the flowmeter; and

adjusting the measurement using the zero-flow calibration value.

29. (Original) The method of claim 28 wherein determining the operational parameter includes determining a configuration of flow elements associated with the flowtube.

30. (Original) The method of claim 29 wherein determining the zero-flow calibration value comprises selecting the zero-flow calibration value from among the previously-determined zero-flow calibration values as being the zero-flow calibration value that corresponds to one of a set of configurations, where each of the set of configurations existed at a time when its corresponding zero-flow calibration value was previously determined.

31. (Original) The method of claim 29 wherein determining the operational parameter comprises accepting a selection of the configuration from a pre-determined set of configurations.

32. (Original) The method of claim 29 wherein determining the operational parameter comprises:

measuring a density of the material; and
associating the density with a first configuration.

33. (Original) The method of claim 28 wherein the operational parameter includes a density of the material in the flowtube.

34. (Original) The method of claim 33 wherein determining the zero-flow calibration value comprises:

associating the density with a range of densities; and
selecting the zero-flow calibration value from among the plurality of previously-determined zero-flow calibration values, based on a pre-determined relationship between the range of densities and the zero-flow calibration value.

35. (Original) The method of claim 33 wherein determining the zero-flow calibration value comprises inputting the density into a mathematical relationship derived from a relationship between the previously-determined zero-flow calibration values and corresponding density measurements.

36. (Original) The method of claim 28 wherein determining the zero-flow calibration value comprises selecting the zero-flow calibration value from among the plurality of previously-determined zero-flow calibration values, based on a pre-determined relationship between the operational parameter and the zero-flow calibration value.

37. (Original) The method of claim 28 wherein determining the operational parameter includes determining a gas void fraction of the material in the flowtube.

38. (Original) The method of claim 37 wherein determining the gas void fraction comprises receiving a current gas void fraction from a gas void fraction measurement system, and further wherein determining the zero-flow calibration value comprises selecting a current zero-flow calibration value previously associated with the current gas void fraction measurement.

39. (New) A flowmeter comprising:
a vibratable flowtube;
at least one sensor coupled to the vibratable flowtube, the sensor being operable to measure vibrations of the vibratable flowtube;
a processing device coupled to the sensor, the processing device configured to:
determine an operational parameter associated with the flowmeter based on a sensor signal received from the sensor;
determine a zero-flow calibration value based on the operational parameter, and based on a plurality of previously-determined zero-flow calibration values;
take a measurement of a property of a material within the flowtube associated with the flowmeter, using the flowmeter; and
adjust the measurement using the zero-flow calibration value.

40. (New) The flowmeter of claim 39 wherein, to determine the operational parameter, the processing device is configured to determine a configuration of flow elements associated with the flowtube.

41. (New) The flowmeter of claim 40 wherein, to determine the zero-flow calibration value, the processing device is configured to select the zero-flow calibration value from among the previously-determined zero-flow calibration values as being the zero-flow calibration value that corresponds to one of a set of configurations, where each of the set of configurations existed at a time when its corresponding zero-flow calibration value was previously determined.

42. (New) The flowmeter of claim 40 wherein, to determine the operational parameter, the processing device is configured to accept a selection of the configuration from a pre-determined set of configurations.

43. (New) The flowmeter of claim 40 wherein, to determine the operational parameter, the processing device is configured to:
measure a density of the material; and
associate the density with a first configuration.

44. (New) The flowmeter of claim 39 wherein the operational parameter includes a density of the material in the flowtube.

45. (New) The flowmeter of claim 44 wherein, to determine the zero-flow calibration value, the processing device is configured to:
associate the density with a range of densities; and
select the zero-flow calibration value from among the plurality of previously-determined zero-flow calibration values, based on a pre-determined relationship between the range of densities and the zero-flow calibration value.

46. (New) The flowmeter of claim 44 wherein, to determine the zero-flow calibration value, the processing device is configured to input the density into a mathematical relationship

derived from a relationship between the previously-determined zero-flow calibration values and corresponding density measurements.

47. (New) The flowmeter of claim 39 wherein, to determine the zero-flow calibration value, the processing device is configured to select the zero-flow calibration value from among the plurality of previously-determined zero-flow calibration values, based on a pre-determined relationship between the operational parameter and the zero-flow calibration value.

48. (New) The flowmeter of claim 39 wherein, to determine the operational parameter, the processing device is configured to determine a gas void fraction of the material in the flowtube.

49. (New) The flowmeter of claim 48 wherein, to determine the gas void fraction, the processing device is configured to receive a current gas void fraction from a gas void fraction measurement system, and further wherein, to determine the zero-flow calibration value, the processing device is configured to select a current zero-flow calibration value previously associated with the current gas void fraction measurement.

50. (New) A transmitter for use with a flowmeter that includes a vibratable flowtube and at least one sensor coupled to the vibratable flowtube, the sensor being operable to measure vibrations of the vibratable flowtube, the transmitter comprising:

a processing device coupled to the sensor, the processing device configured to:

determine an operational parameter associated with the flowmeter based on a sensor signal received from a sensor;

determine a zero-flow calibration value based on the operational parameter, and based on a plurality of previously-determined zero-flow calibration values;

take a measurement of a property of a material within the flowtube, using the flowmeter; and

adjust the measurement using the zero-flow calibration value.

51. (New) The transmitter of claim 50 wherein, to determine the operational parameter, the processing device is configured to determine a configuration of flow elements associated with the flowtube.

52. (New) The transmitter of claim 51 wherein, to determine the zero-flow calibration value, the processing device is configured to select the zero-flow calibration value from among the previously-determined zero-flow calibration values as being the zero-flow calibration value that corresponds to one of a set of configurations, where each of the set of configurations existed at a time when its corresponding zero-flow calibration value was previously determined.

53. (New) The transmitter of claim 51 wherein, to determine the operational parameter, the processing device is configured to accept a selection of the configuration from a pre-determined set of configurations.

54. (New) The transmitter of claim 51 wherein, to determine the operational parameter, the processing device is configured to:

measure a density of the material; and
associate the density with a first configuration.

55. (New) The transmitter of claim 50 wherein the operational parameter includes a density of the material in the flowtube.

56. (New) The transmitter of claim 55 wherein, to determine the zero-flow calibration value, the processing device is configured to:

associate the density with a range of densities; and

select the zero-flow calibration value from among the plurality of previously-determined zero-flow calibration values, based on a pre-determined relationship between the range of densities and the zero-flow calibration value.

57. (New) The transmitter of claim 55 wherein, to determine the zero-flow calibration value, the processing device is configured to input the density into a mathematical relationship derived from a relationship between the previously-determined zero-flow calibration values and corresponding density measurements.

58. (New) The transmitter of claim 50 wherein, to determine the zero-flow calibration value, the processing device is configured to select the zero-flow calibration value from among the plurality of previously-determined zero-flow calibration values, based on a pre-determined relationship between the operational parameter and the zero-flow calibration value.

59. (New) The transmitter of claim 50 wherein, to determine the operational parameter, the processing device is configured to determine a gas void fraction of the material in the flowtube.

60. (New) The transmitter of claim 59 wherein, to determine the gas void fraction, the processing device is configured to receive a current gas void fraction from a gas void fraction measurement system, and further wherein, to determine the zero-flow calibration value, the processing device is configured to select a current zero-flow calibration value previously associated with the current gas void fraction measurement.